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CASES OF GLAUCOMA OPERATED UPON BY C. R.
AGNEW, M. D.

REPORTED BY DAVID WEBSTER, M. D., NEW YORK.

CASE I. TREPHERING THE CORNEA FOR THE RELIEF OF PAINFUL
GLAUCOMA ABSOLUTUM; SUBSEQUENT ENUCLEATION.

Oct. 28, 1875.—Mrs. C. K., aged 64, began to use glasses at the age of thirty, but has not changed them for stronger ones more than three times. Otherwise, her eyes never gave her any trouble until a year and a half ago when she began to have occasional attacks of "sick headache" with pain in and radiating from her right eye. She does not know that there was any blurring of sight during these attacks. About a year ago she first observed that the attacks were accompanied by redness of the right eye. She does not know whether the sight was impaired or not until the last attack, eight months ago, which was much more severe than any that had preceded it. The pain has continued, without intermission ever since, and she has taken opiates daily with only partial relief. The eye lost all perception of light some six months ago. She never observed halos about lights.

The eyeball is injected, the cornea insensitive and ulcerated at its center, the pupil dilated and fixed, the iris pressed forward so as to be nearly in contact with the cornea, the tension much

increased and the media so opaque that with the ophthalmoscope only the faintest tinge of red is seen in the reflex from the fundus. Left eye, vision = $\frac{20}{xxx}$ with $+\frac{1}{4}$; visual field normal, tension slightly increased, pupil a little sluggish. The left eye has been "weak" for some time, and the patient wears dark blue coquilles and inclines her head forwards with a fixed scowl. The ophthalmoscope shows only very shallow excavation of the optic disk.

The patient was placed under ether and a disk removed from the center of the cornea by means of Bowman's smaller trephine. The aqueous escaping suddenly as soon as the cornea was perforated, the anterior capsule of the lens came in contact with the sharp edge of the trephine and some of the soft lens matter escaped. Absorbent cotton was applied and the eye bandaged. This was removed twice daily, the eyelids cleansed, and the dressing reapplied.

Nov. 24.—The patient has slept without anodynes and has had no pain in the eye or head from the operation until to-day. Applied two leeches to temple.

Nov. 25.—While stooping, last night, the patient struck her eye against the corner of the bedstead. The pain was very severe for a short time and then subsided spontaneously. The remaining nucleus of the lens was either forced through the only partially healed corneal wound or precipitated to the bottom of the vitreous chamber. The space between the iris and the cornea is partially filled with blood.

Nov. 26.—The patient was allowed to go home, although there still remained some blood in the anterior chamber.

January 4, 1879.—The patient returns, stating that a week ago she was attacked with bleeding from the nose which her family physician stopped with great difficulty. Ice was applied to her nose, temples and back of neck. Her attendants estimated her loss of blood at one quart. She thinks she caught cold in the eye from the ice, for two days later severe pain set in, in the eye, and her family physician has not been able to relieve it. The condition of the left eye is about the same as when first examined. $V = \frac{20}{xxx}$ with $+\frac{1}{4}$. The right eyeball is hard ($T + 3$), the cornea ulcerated, and the anterior chamber obliterated.

The indications now seemed to point directly to enucleation. This was performed, the patient being under ether, and she went home at the end of a week.

May 21, 1879.—Dr. Francis Delafield, who examined the enucleated eye, informs me that he "did not find any lens at all in it." This places beyond doubt the fact that the unabsorbed nucleus was expelled from the eye at the time of the injury, as was thought probable at the time.

CASE II.—Painful Glaucoma Absolutum of Right Eye with Chronic Glaucoma of Left. Enucleation of Right and Iridectomy of Left at One Sitting.

June 11, 1873.—Mrs. McK., aged 51, never saw very well with her left eye. Three years ago she was attacked with a very painful inflammation of both eyes. The right has been painful day and night ever since. The left has "pained all along some," but very severely the last six weeks.

Status praesens: right eye, lens cataractous and pushed forward, haemorrhage in the shallow anterior chamber, several ciliary staphylomata, eyeball very hard, no perception of light. Left eye, vision = $\frac{20}{L}$, visual field, at a distance of two feet, measures four and a half inches horizontally and four inches vertically. All that remains of the visual field is immediately below the point of fixation. Tension increased. The ophthalmoscope shows cupped excavation of the optic papilla 1.80 mm. in depth, arterial pulsation, and ring of choroidal atrophy around the disk. The media are transparent.

June 12.—Enucleation of right eye and iridectomy upward upon left, under ether. There was no bleeding into the coloboma, and the patient came out of the ether without delirium or vomiting.

June 13.—Upon recovering from the anaesthetic the patient rested quietly until midnight when she awoke with pain in the eye. The pain has continued, without remission, and the eye is slightly red. The pain has "quite left" the right side of her head.

June 14.—When the bandage was removed, this morning, there was some chemosis, and, although the anterior chamber was still empty, there was decided increase of tension. The

pain had been continuous, but less severe than the day before. Three leeches were applied to the left temple and after they had dropped off the bleeding was encouraged by hot fomentations for an hour. Iced cloths were then applied. At 5:30 p. m. the patient complained that the iced applications increased the pain. They were therefore discontinued.

June 15.—The patient took half a grain of sulphate of morphia last night and slept well. She says that she feels "shaky" this morning.

June 17.—The patient passed a very good night without anodynes. The eye shows less chemosis and less increase of tension. There is no pain. Perception of light remains. Ordered three leeches, atropine, and bathing with hot water.

June 22.—Eye looks very much better, but still has no anterior chamber, and only perception of light.

June 25.—Leeched again.

June 26.—Anterior chamber has begun to refill.

July 3.—The patient opens her eye much better and can distinguish large objects about the room. The media are transparent, the disk clearly visible, no hyalitis or detachment of the retina.

July 14.—Counts fingers at fifteen feet.

July 19.—Reads Snellen No. 30 at 18". Visual field 6½" horizontally and 3½" vertically, as measured at two feet.

July 20.—Media clear, tension slightly increased, disk still cupped as before the iridectomy, vision same as yesterday.

The patient was now allowed to go home, with a letter to her family physician. About two years later we learned that she had become totally blind.

The enucleated eyeball was examined by Dr. William Cheatham, who made the following report:

"Eyeball enlarged; ciliary staphylomata; anterior chamber very small and partly filled with blood. Lens pushed forward. Posterior chamber enlarged and divided into three parts by funnel-shaped detachment of the retina. Two-thirds of posterior chamber, that part between the retina and the choroid, filled with finely granular, structureless exudation; the other third em-

braced between the detached retina and the lens, and occupying the ciliary staphyloma, contains the vitreous body in a state of myxomatous degeneration. The retina is partly in a state of colloid degeneration, and has partly undergone connective tissue degeneration. Haemorrhage in canal of Petit."

CONGENITAL DERMOID TUMOR ON THE EYE.¹

BY S. POLLAK, M. D., ST. LOUIS.

The patient is 38 years of age, of perfectly healthy parents. His mother—a very intelligent obstetrician—noticed a black spot, the "size of a coffee ground," soon after his birth, which never left him. When he was five years old, the parents consulted me about it. I must have considered it a myocephalon, that is, a protrusion of the iris through an opening in the cornea, for I suggested to have it snipped off. But inasmuch as the pupil was quite free, and the sight not in the least impaired, the parents declined acceding to my suggestion. Nothing has been done to it, or for it, since. By the merest accident I saw him again last Sunday, the 8th inst. I found a tumor had developed over the black spot, and has been for many years in its present condition.

The tumor is situated at the limbus conjunctivæ, or more properly, it is located in the sclero-corneal margin of the lower outer quadrant. It is conical in shape, with a base of 8 mm. in diameter, and an elevation of 3 mm. It is of a pale, whitish-yellow color, has a smooth surface, and from its apex a stiff, white hair protrudes, about $\frac{1}{2}$ to $\frac{2}{3}$ of an inch long, which projects between the lids; it causes no irritation, and it does not impair the motions of the eye. The hair is firmly rooted in the tumor; it cannot be easily extracted with the fingers. This can best be accomplished with strong evulsive forceps. It grows soon again, and while yet short and stubby, it causes much irritation to the palpebral conjunctiva, but when it grows long enough to project between the lids, the irritation ceases. When, however, it is allowed to grow too long, it curves inwards, lodges inside the lower lid, and provokes considerable lachrymation.

1. Patient presented to the St. Louis Medical Society, Nov. 14, 1885.

The hair has to be evulsed about every three months, and though the bulbar end is extracted, the follicle remains intact, and the hair is reproduced.

The hair is nearly as often black as white, which is difficult to account for. The eye is sound, sight good, somewhat hypermetropic.

There is a crescent-shaped white line in the cornea, adjacent to the tumor, which may be either a fatty degeneration, like an *arcus senilis*, or a cicatricial opacity.

The entire structure bears a close analogy to that of the skin and is doubtless a *dermoid tumor*. This must not be confounded with a *cystic tumor* of the conjunctiva; the latter is readily distinguished by a circumscribed round form and its translucency, which is easily recognized by oblique illumination.

Dermoid tumors on the eye are not of very frequent occurrence.

Von Graefe exhibited one in his clinique in 1860, which covered over two-thirds of the cornea, was lobulated and very disfiguring.

Wardrop, in his "morbid anatomy of the human eye," mentions an extraordinary case, in which twelve very long hairs grew from the middle of the tumor, passed through between the eyelids, and hung over the cheeks; these hairs had not appeared till the patient was 16 years of age, at which time the beard began to grow.

Dr. *Taliaferro*, of Kentucky, has recorded in the "American Journal of Medical Sciences," 1841, an interesting case of a girl aged 15, who had a congenital tumor on each eye. The tumors were of a delicate pink color at their base, becoming brownish at their opices. The tumor on the left eye, at its base, measured five lines in one diameter by three and one-half in the other, and rose in a conical form to about six lines in height. It almost covered the lower two-thirds of the pupil. From the apex grew ten or twelve hairs, about sixteen lines in length and a shade darker than the cilia. The tumor on the right eye was in shape and position similar to the one on the left, but of about half the size, and covering only the lower sixth of the pupil.

The tumors were excised with excellent results.

Similar cases have been reported by Ryba (26 cases) Arlt, Graefe, Schweigger, von Wecker, Swanzy, Leber, Hildige, and others. A list of the papers on this subject may be found in Graefe-Saemisch, Vol. IV., Part 1, page 309, etc. (EDITOR.)

The excision of dermoid tumors can be readily effected, but care must be taken not to endeavor to remove them thoroughly from the cornea, as they sometimes extend deeply into the structure.

Whether the hair can be eradicated without destroying the follicle is doubtful. Electrolysis has proven effective in destroying the follicles of the cilia, but the risk of endangering the integrity of the eye must be seriously considered.

THE ACTION OF CYLINDRICAL GLASSES IN THE CORRECTION OF REGULAR ASTIGMATISM.

BY SWAN M. BURNETT, M. D., WASHINGTON.

The appearance of some papers and correspondence in recent numbers of this journal seems to show that there is yet lacking a thorough comprehension of the elementary conditions of regular astigmatism and of the method of its correction by means of cylindrical glasses. I may, therefore, be pardoned for calling to mind some of the fundamental principles involved.

In regular astigmatism where the refracting system is represented by an ellipsoid with three unequal axes *the principal meridians must lie at right angles to each other.* Whenever the refracting surfaces depart in any degree from this form, it ceases, speaking from a strictly optical point of view, to be regular astigmatism, though it does not follow that cylindrical glasses may not be of some advantage practically. There must, however, always remain under these conditions some amount of an irregular astigmatism which the cylinders do not correct.

Whenever two cylindrical lenses (+ or —) are placed with their axes at angles to each other the cylindrical refraction of the combination will be the *algebraic sum* of the two lenses, but the axis of this resulting cylinder will be different from that of either lens separately, and in most instances there will also be associated a spherical refraction.

It will be remembered that it was on this principle that Stokes made his well-known apparatus which enabled him to obtain with one + and one — cylinder, a constantly varying amount of cylindrical refraction with a constantly changing direction of the axis, on revolving them about a common center.

It is not necessary to enter here into a mathematical exposition of the matter, since any one can demonstrate the facts experimentally by means of the cylinders found in our test-cases.

Take, for example, the two cylinders used in Dr. Fox's case, + 3 and + 2. When the axes of both are at 180° the refractive result will be a cylinder of (3+2) = + 5 D. axis 180°, and of course will be neutralized by a — 5 cy. axis 180°. Now turn the + 2 until its axis shall be at 155°, then for its neutralization there will be required — 0.25 s. ⊖ — 4.5 cy., axis 172° (about). When the + 2 cy. is further turned to 135° the combination can be neutralized only by — 0.75 s. ⊖ — 3.5 cy., axis 160°, whilst when + 3 stands at 180° and + 2 at 90°, the neutralizing combination will be — 2 s. ⊖ — 1 cy. axis 180°, since the + 2 cy. now takes + 2 from the 3 to form a + 2 spherical, leaving only a + 1 cy. axis 180°.

It is thus demonstrated experimentally that it matters not at what angle the axes of the + cylinders stand to each other, the result of the combination always amounts to a cylindrical or spherocylindrical refraction, which can be represented by a plain cylinder or a spherocylinder, the cylindrical action diminishing and the spherical increasing as the axes approach to right angles.

Dr. W. S. Dennett, of New York, has constructed a very ingenious modification of Stokes' lens which enables one to read off on the apparatus without the trouble of calculating, the exact cylindrical refraction of a concave and a convex cylinder when revolved about their common center, together with the direction of the axis of the combination at all angles of crossing of their individual axes. But even the fertile brain of Dr. Dennett has not yet furnished us with the amount of the varying spherical refraction for each of those positions. When he does, his apparatus will be a most welcome addition to the armamentarium of the ophthalmic surgeon.

The lenses used by Dr. Fox and by Dr. Little can have no advantage over spherocylinders which they indeed are; and it should be easy for Dr. Little to reduce any crossed cylinders combined with a spherical to a spherocylindrical lens having their exact optical equivalent. Moreover it is apparent that if these are cases of regular astigmatism with the principal meridians at right angles to each other the axes of the correcting glasses must also be at right angles to each other. If, however,

they are cases of irregular astigmatism, it becomes an entirely different matter, though always any combination of cylinders can be reduced to cylinders or spherocylinders.

In regard to the grinding of the kind of lenses spoken of by Drs. Fox and Little, we do not conceive it possible that the optician has actually attempted to grind two cylinders on one surface. If he has done so he cannot have succeeded, for it must be apparent that in grinding the second cylinder the essential cylindrical character of the first lens must inevitably be destroyed. A single surface can not have two perfect cylinders, except when their axes are at right angles, any more than a single surface can have two spherical curves. We more than half suspect that Mr. Borsch is a clever optician as well as optician and has not tried to grind these two cylinders at oblique angles on one side of the lens, but has simply given the optical result in a spherocylinder. But even if he could so grind them, we think we have clearly shown that it would be labor spent to no purpose.

In conclusion, we notice the very remarkable statement of Dr. Culbertson in the October number, page 212, in which—if we understand him aright—he asserts that the cylinder which corrects a simple myopic astigmatism for distance, does not correct it for near vision.

“By this—glass the myopia in proximal vision has been simply transferred from one to the other plane, and the foci of the two planes are not of the same length.”

We think there must be a mistake somewhere, either in our interpretation or in the doctor’s expression, for we cannot conceive how such a state of things would be possible, with a normal accommodation acting on all the meridians at once. When a simple myopic astigmatism is corrected for distance, the eye becomes optically emmetropic with all its meridians the same, and accommodation must act upon it exactly in the same manner it does upon an emmetropic eye.

TRANSLATION.

The following report of an address made by Dr. Haltenhoff at the occasion of unveiling a monument in memory of the great Daviel and in the presence of a large number of the Swiss oculists, in the cemetery *Grand-Sacconex* at Geneva, Switzerland, on the 8th of October, is taken from the *Revue Clinique d'Oculistique*.

Before removing the veil which covers this stone, let me recall to your memory in a few words by what rights *Jacques Daviel* has merited the admiration and the thanks of posterity.

About the middle of the XVIIIth century the healing art had barely emancipated itself from the manacles of the scholastic tradition so almighty in the middle ages. The progressive movement which was destined to create a new branch, that of the natural sciences, had, it is true, commenced, thanks to the labors of the great anatomists, but ophthalmology had scarcely been benefited by this progress and remained almost totally in the hands of ignorant charlatans. The most important operation in ophthalmic surgery, the cataract operation, was usually practiced by wandering oculists and on the public squares. It consisted in reversing and depressing the dim crystalline lens into the fundus oculi by means of a needle, in order to free the pupil from it. This operation was usually immediately successful, the patient recovered sight, but only too frequently this was soon followed by a chronic inflammation of the eyeball, and in most cases sight was lost under long suffering and without any hope for future improvement. Sometimes, even, the fellow-eye was also destroyed by sympathetic inflammation. A long series of centuries had, so to say, canonized the principle and the method of this operation, the results of which had not been altered by any notable improvement.

A young Norman surgeon, practicing at Marseilles, where he had gone when quite young to help those suffering from the

pest, was the first to rise against this old practice. He firmly declared that the cataract, *that is the sick crystalline lens*, ought to be extracted from the eye. He published a method invented for this purpose and with which he had good success in several cases. This innovation was little believed in, and was attacked in a lively manner by the faculties of medicine, the scientific academies and the journals.

Jacques Daviel accepted the fight with his untiring ardor and his innate energy, and produced new proofs. He abandoned the depression of the cataract altogether and practiced successfully several hundred cataract extractions according to his method. His reputation as an operator soon extended over Europe; distinguished physicians took his part; but *Daviel* had not the good fortune to see the triumph of his ideas. In full activity he was suddenly attacked by a grave malady, he came to Geneva to be treated by our celebrated co-citizen, Dr. Tronchin, and died in a hotel in our city, alone in a foreign country.

The fight between the admirers and adversaries of *Daviel's* operation did not die with him. It was only about the middle of our century that the extraction generally adopted, as the only normal cataract operation. The operative procedure and the instruments have undergone a good many modifications since *Daviel*, but the principle has remained the same. If to-day the cataract extraction is one of the most certain and most brilliant surgical operations, if every year thousands of blind people all over the world recover their precious sense of vision for the remainder of their lives, it is due to *Daviel*.

France is justly proud to have produced this eminent man. But, gentlemen, as science and charity have no fatherland, so is *Daviel* glory universal and his name and his conquest belong to all civilized nations. Have we not here a striking proof of this maxim by the honor done his memory by the oculists of our country. The Swiss commune of the *Grand Saconnex* feels honored to-day to own what remains of *Daviel*. She will from now forth have to guard and to preserve this monument, the first that has been erected in honor of the great French oculist. We have no doubt but that our co-citizens of the *Grand-Saconnex* and the officers they have appointed will loyally fulfill their duty.

Though most of them are farmers and laborers, the inhabitants of this community will remember that in this cemetery rests a man, who also has been a great worker, a worker whose work has benefitted a great many of his race. * * * *

* * * The veil covering the monument fell and every one admired the remarkable work of M. Reverdin, who received the unanimous congratulations. * * *

Mr. Alfred Daviel addressed the meeting in the following words.

As a member of the family Daviel, and bearing the name of the one to whose memory you have erected the monument unveiled to-day, I feel it my duty to say a few words. I cannot do so without feeling considerable emotion. In fact, gentlemen, how could I help being deeply touched by the manifestation to which you so kindly have invited me and my cousin, Mr. Laignel-Lavastine to be present.

When quite young yet I have been taught by my venerable and regretted father, who related to me the details of his life, to admire the virtues of the surgeon whose merit you proclaim to-day, his patriotism, his ardor for work, his charity, his unlimited love for humanity, and particularly for those that luck had forsaken. The beautiful engraving by Lemire, which I had before me from my infancy, often attracted my attention, and I knew by heart the verses which were written on it, and by which a cured and grateful poet had celebrated the method invented by his operator. * * *

* * * The life of *Jacques Daviel*, his long labors, his refusal to the offers of Ferdinand VI. of Spain, his numerous cures, his charity and his talent as an operator, celebrated by Morant and Diderot, with all this I was made acquainted. I also knew that he had invented a method to operate for cataract. Was this invention destined to make his name immortal? It is yours to say so, gentlemen; yours, as men of science and as citizens of a nation which is a friend of France and of all that is noble and ideal—it is yours to say so, a few steps from a city which is justly proud of the great men whom she has brought forth. You ought to proclaim that, conforming to the beautiful devise of Geneva, *Post tenebras lux*, by you inscribed on this

monument, the method of operating for cataract by extraction invented by *Davel*, has been justly taken from the grave of forgetfulness in which it had been buried for a long time after his death.

What a singular circumstance! *Jacques Davel*, who himself had healed so many infirmities of others, came to your beautiful and noble country hoping to heal the disease which had attacked him, and died on your soil. According to his patriotic wish he was buried in French ground, and it so happened that in 1875 this ground, where he rested, was made a part of Switzerland.

Thus the last wish of *Jacques Davel* has ceased to be executed.

His family, gentlemen, cannot mourn this fact after what you have done. Does she not know, as the whole France, especially since the cruel trials she has undergone in days of sorrow and misfortune, how hospitable is the Swiss soil to the Frenchmen? She knows your especial reverence for those who have done some service to science and humanity the religious care with which you guard the memory of great men, wherever they were born.

The zeal with which you have erected this monument, as soon as by Dr. Haltenhoff's discovery you know that what remains of *Jacques Davel* was resting here, the emotion with which this community accepted this trust, show clearly with what piety you will preserve it too.

In the name of the *Davel* family I thank Dr. Haltenhoff who has initiated this movement, the committee of Swiss oculists who have brought to such a good end the task that they had imposed upon themselves, and the honorable and intelligent administrator of this community, who has helped the organizers of this ceremony, which we shall never forget, in the most active and most useful manner.

I could not end without congratulating the artists who have conceived and executed the work which we admire at this moment.

Thanks to all of you. In fact, only through you am I enabled to lay on his grave the homage due to his memory in the name of the family of *Jacques Davel*.

CORRESPONDENCE.

—
PHILADELPHIA, November, 1885.*F. F. C. Van Allen, Esq.:*

DEAR SIR.—In answer to your query published in the October number of the American Journal of Ophthalmology, I would say that John L. Borsch, optician, 1324 Walnut street, ground the glass asked for by my formula as follows: A *concave* disk or mould of brass metal was made having two curvatures, short curve, axis 108° radii equivalent to thirteen dioptres, long curve, radii = ten dioptres. The flat surface of a piece of glass ground by a horizontal or rotary motion (the two movements applied in grinding spherical and cylindrical glasses) would not conform itself to this disk, but by applying a *pendulum* movement through the long diameter of the disk the glass is shaped whose refractive surface at 90° represents $+10$ dioptres, and at 180° = $+13$ dioptres—which would be equivalent to sph. $+10^\circ$ = cyl. $+3^\circ$, ax. 180° . The under surface of this glass is ground on a cylindrical disk, whose radii represent two dioptres at an angle of 50° . We now have a glass whose refraction on one surface is = $+10^\circ$ \bigcirc cyl. 3 D. ax. 180° ; on the under surface cyl. $+2^\circ$, ax. 50° and whose total refraction is equivalent to sph. $+10$ D. \bigcirc cyl. $+3$ D. ax. 180° \bigcirc cyl. $+2$ D. ax. 50° .

It is obvious that in making a glass of this kind the spherical and cylinder must be ground on one surface and the second cylinder on the under surface. By the introduction of the pendulum motion a glass was ground which could not have been made by the methods now in the hands of opticians.

Very Respectfully,

L. WEBSTER FOX.

Minneapolis, Nov. 12, 1885.

Dear Doctor:—Will you be so kind as to explain the following prescription in the next issue of the AMERICAN JOURNAL OF OPHTHALMOLOGY.

Minneapolis, Feb. 25, 1885.

Mrs. F. C. W.

O. D., 3.26 D., Spher.

O. S., 3.26 D., "

T. G. R., M. D.

What I wish to know is there such a lens as 3.26 D., and what is its equivalent in English inches?

I have never known of a lens made in the dioptric system as 3.26 D., 3.D., 3.5 D. and in some instances 3.25 D. are of course regular lenses, and as no standard trial case I have ever seen had such a lens in, I would like to know if such a lens is manufactured.

Can you also let me know how Dr. L. W. Fox had the lens mentioned on page 210 of September JOURNAL ground, as I read it, it is + 10 D \cap cyl. +3, D ax. 180 \cap cyl. +2 D ax. 50° (ground in one). One spherical and two (2) cylindrical surfaces on one lens. How was it done? You will greatly oblige me by explaining the above.

Yours Respectfully,

C. A. HOFFMAN.

3.26 D. is probably a *lapsus calami*.—(Editor.)

HYDROCHLORATE OF COCAINE.

McKesson & Robbins have now ready for free distribution, upon application, a second edition of their pamphlet, giving interesting notes on the uses and properties of this valuable local anesthetic. It gives a record of important operations on the Eye, Ear and Throat, in Gynaecology and Dental Surgery, all conducted by eminent investigators.

We are now the largest American manufacturers of Cocaine, and our Alkaloid, Muriate, Solutions and Oleate can be confidently relied upon. We are enabled to assure the profession of this from the many accounts we have received of successful operations conducted under the influence of our Solutions and Oleates, made respectively from our own manufacture of the Muriate and the Alkaloid.

D. B. ST. JOHN ROOSA, M. D., LL. D., says:—"In my hands it has superseded ether in these operations. I am entirely satisfied with Cocaine as a local anesthetic. I have found the preparation made by **McKesson & Robbins** as good as that from **Merck's** alkaloid."—Dec. 4, 1884.

CHAS. STEDMAN BULL, M. D., writes:—"I have used your solution in quite a number of cases, both as preliminary to various operations, and also as a local therapeutic agent, and have been entirely satisfied with it as a local anesthetic. It certainly does all that is claimed for it."

HERMAN KNAPP, M. D., writes:—"I have tried a sample given me by **Messrs. McKesson & Robbins**, of New York, as their own make, which acted as well as **Merck's**."

"106 MADISON AVE., N. Y., Dec. 24, 1884.

Messrs. MCKESSON & ROBBINS, Fulton St., New York.—*Gentlemen*—I take pleasure in informing you that the solution of Cocaine of your manufacture, which I have used quite extensively of late, has given excellent satisfaction, both as to its rapidity and regularity of action, and the lasting effect of the anesthesia produced. Where time is precious, rapid anæsthetization of the cornea, or conjunctiva is an important factor in ophthalmic

surgery, and in this special field of usefulness, I feel confident your Cocaine is destined to receive its full share of commendation from the Profession.

Yours very truly. F. C. RILEY, M. D."

"439 MONTAGUE ST., BROOKLYN, Dec. 11, 1884.

It gives me great pleasure to say that I have used the preparation of Hydrochlorate of Cocaine made by **McKesson & Robbins**, in a great variety of cases of operations on the eye, with the most complete satisfaction to myself. The relief from pain on the part of the patient was perfect, and no statement can be made more enthusiastic than the facts warrant. **ARTHUR MATHEWSON, M. D.** Surgeon B'klyn Eye and Ear Hospital."

"123 E. 25th STREET, Dec. 10, 1884.

Messrs. MCKESSON & ROBBINS—*Gents*—The specimen of Cocaine which you left with me a few weeks ago, has given great satisfaction. I have used it in more than a hundred cases of all kinds of painful affections of the eye and ear, and in a great many operations upon the eye, such as cataract extractions, squint operations, and others, and the preparation has produced complete anesthesia in all cases. Sincerely yours,

DR. MITTENDORF."

We have had very large demands for our Oleate of Cocaine, containing 5 per cent. of the Alkaloid. The Oleate possesses many advantages over the aqueous solutions, being more quickly and thoroughly absorbed, and not so readily diluted by the fluids with which, in practice, it may come in contact. These advantages are the more manifest in dental surgery.

For the convenience of the Profession, we have in very compact form, the following

COCAINE CASES.

CASE No. 1—Two $\frac{1}{2}$ ounce g. s. vials, **McKesson & Robbins** 4 per cent. Solution.

CASE No. 2—Two $\frac{1}{2}$ ounce g. s. vials, **McKesson & Robbins** 2 per cent. Solution.

CASE No. 3—One $\frac{1}{2}$ ounce, each, 4 per cent. and 2 per cent. Solution.

CASE No. 4—One $\frac{1}{2}$ ounce **McKesson & Robbins** 4 per cent. Solution; one $\frac{1}{2}$ ounce **McKesson & Robbins** Oleate.

The same as No. 4, except that the glass stoppers of the vials are tapered and lengthened, so that the points reach the bottom of the vials, like acid-testing bottles, thus affording the most convenient and cleanly way of applying either Solution or Oleate.

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